

# Teleporters, Tunnels & Time: Understanding Warp Devices In Videogames

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## ABSTRACT

The warp is a device that reframes notions of time and space. It is a common cultural artefact, one that audiences have come to recognise and believe in through various media. We accept the bed in *Bedknobs and Broomsticks*, the Tardis in *Doctor Who*, the supralight speed engines of science fiction, as time/space travel devices in order to get characters from A to B, to advance their progress along the story path. The warp as a path device can also be seen in board games such as *Snakes and Ladders*, where both the snake and ladder sections break the linearity of moving the character piece from square to square regularly up and down the game-board. It is therefore natural that such a time/space device has continued and been reconstructed within videogames.

The virtual gameworld is itself a place able to reconstruct time and space; both Juul [10] and Atkins [3] discuss how players' perceptions of time and narrative elements within the videogame can be rearranged, but the warp, a significant 're-arranger', is rarely discussed further or in detail. The warp is used as a common device within videogames to transport the player from their location to somewhere else within the gamespace. Although commonly acknowledged through the hidden tunnels within *Super Mario Bros*, the warp is not a straightforward device, and can manifest itself in various ways during gameplay. It may be found in deliberately installed puzzles, and by the 'aberrant player' [7]. It may be a way of avoiding danger, of 'jumping' over sections previously achieved, or even of cheating. It may be the punishment for straying from a 'good path', or the reward for a particular act. Whatever its use or function, the warp exists within the virtual world as a means of managing time, space and narrative. The warp turns paths experienced by the player into fixed 'tracks', where navigational control is removed whilst in the warp sequence, and understanding the warp in this way allows us to further understand the player's relationship with the game paths they are moving along, the stories they move within.

This paper discusses the multiple characteristics of the warp by identifying its use in contrasting videogame genres.

These characteristics open up ways of discussing the aesthetics of the warp experience for the player and how its use affects path structures as well as time and narrative elements within videogames. The discussion will include both the built in, deliberately installed 'puzzle-based' warps and the 'inadvertent warps' sought by those seeking to discover more of the games 'algorithm' [12].

## Author Keywords

Warp, space, time, narrative, path

## INTRODUCTION

There has always been a fascination with ways of transporting ourselves to other areas through teleportation and warping throughout fiction and more recently trying to link that fiction with scientific fact. Warp functions themselves exist in various novels and films such as the rabbit hole in *Alice in Wonderland*, the TARDIS in *Doctor Who*, and even the bed in *Bedknobs and Broomsticks*. Each instance of the warp sees the characters within such fictions use a device to transport them somewhere else.

Through science fiction series such as *Star Trek*, the term 'warp speed' is also used as a way of describing the way in which warps allow for a much quicker movement through space than is generally possible within the real world and is discussed by Benedikt who states that, "the ancient worlds of magic, myth and legend to which cyberspace is heir as well as the modern worlds of fantasy fiction, movies and cartoons are replete with violations of the logic of everyday space and time: disappearance, underworlds, phantoms, warp speed travels, mirrors and doors to alternate worlds, zero gravity..."[14].

These ideas of the warp are part of our cultural imaginary and indicate how we understand time and space differently within fictional environments. Each instance of the warp acts as a 'device' for changing time, space and narrative elements within fiction, and through its presence in various media types, we can recognise the warp as a common 'cultural artefact'. It is only natural therefore that this

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progression of fiction has been recreated within games, where once again constructions of time, narrative and play can be understood in various ways. *Snakes and Ladders* is one such game that uses ‘warp devices’ (the snakes and ladder functions within the game). The player is transported forwards or backwards along different paths, breaking her original linear route through the game-board. The use of the warp within the videogame is yet another progression from real-world game ideas to virtual spaces, as the realms of the technology allow for the manipulation of time and space.

This paper will focus on videogames that involve the player having a 1:1 relationship with the path through their avatar. These types of games usually exist through the genre markers of ‘first-person’ and ‘third-person’ games as discussed by King and Krzywinska, stating that “[a] greater sense can be established of what might be termed *being-in-the-gameworld*, a phenomenological impression of presence in the gamescape”[11]. The relationship between avatar and path can be seen through Juul’s theories of time, both inside and outside of the gameworld. Time is separated by Juul in terms of ‘play time’, which “denotes the time span taken to play a game”, in contrast to ‘fictional time’, “the time of the events in the game world”[10]. In games where there is a 1:1 relationship between the player’s avatar and the path, there is this same mapping of 1:1 between ‘play time’ and ‘fictional time’. It is important to understand these mappings between the relationship between the path and time as the warp device alters these relationships as will be discussed later on in this paper.

In discussing the various paths through videogames it is possible to understand how certain objects lead to opening further parts of the path. In King and Krzywinska’s discussions of exploration within gamespace, they separate “hard boundaries” (those not allowing players to move any further within the gameworld, such as not being able to cross a virtual lake) from “soft boundaries”, that “act as temporary barriers but can be traversed under certain conditions (a key needed to open a door for example...)” [11]. It can therefore be seen that various objects found along the path, such as the ‘key’ mentioned previously can unlock these soft boundaries in order to explore the game landscape further. Finding the correct object to open the ‘soft boundary’ acts as a puzzle structure within the videogames genres defined above. This paper focuses on those objects that disrupt the game path and instead of opening new paths, seek to transport the player’s avatar to new unconnected paths within the gameworld.

### WARP DEVICES

*“Super Mario Bros...offer(s) warp zones for players to skip levels entirely or to travel down a tunnel to an area without enemies and filled with gold coins to then travel back up a tunnel to the regular level which has been progressed spatially” [17]*

It is possible to understand the warp as a device along a path. The term device can be understood as either a

permanent object on the landscape or a portable object found to be used when required by the player. As the quote above from Taylor states, the tunnels within *Super Mario Bros* can act as warp devices to be found along some paths within the game. In this instance, once the player is in the tunnel, she is no longer able to navigate along the path. The view within the tunnel is not seen; only the path before the tunnel and the path after the tunnel can be viewed. The player has therefore been transported from one path of the game to another, and has no choice in being able to freely move back to the original path.

Jenkins discusses warps in relation to De Certeau’s bridges stating that, “[a] related feature of the games are warp zones-secret passages that, like De Certeau’s bridges, accelerate one’s movement through the narrative geography and bring two or more worlds together”[6]. Although the warp does bridge together two separate gameworlds, the term bridge implies a different path structure to the one offered by the warp. Bridges are structures that connect paths, whereas the warp seeks to disconnect them. The bridge often shows where the path may lead the player’s avatar next, whereas this is not always as obvious when entering a warp.

Therefore, the warp can be characterized by the following statements:

1. Warps break the fluidity of the path. The player is taken from one path to a separate path (even if the new path can be seen, the original path is still broken in order to reach it).
2. The navigational control of the player is taken away whilst in the warp. The player becomes viewer for the time they are in the warp.
3. Time and narrative structures can change whilst in, or after the warp, as the fluidity of the previous path has been broken.

In breaking the player’s original path within the game, and removing navigational control, the experience of the player’s avatar changes from being on paths within the gamespace to being on tracks. It is through understanding the difference between the path and the track, that it is possible to see how the warp changes the movement, navigation and direction of the player’s avatar in the gameworld.

### PATHS, TRACKS & TIME

Previous ways of describing different path structures have often commented on the maze or labyrinth (see Aarseth[1], Murray[13], Taylor[17], Fernandez-Vara[5]). It is through the writing of Fernandez-Vara that the unicursal path (that is often related to the labyrinth structure) is discussed. Unicursal paths are often related to designs of the labyrinth and used in opposition to multicursal maze paths. Unicursal paths have one path from beginning to end, whereas multicursal mazes are constructed of multiple paths in order

for people to choose the correct path through them. In discussing unicursal paths, the direction of the path is often confused with the singular nature of the path, such as discussed by Fernandez-Vara, who states, “[i]f there is a single path the game feels as though it is ‘on rails’ like a theme park ride: the user cannot choose where to go. Unicursal structures are thus scarce in videogames. Even games that go ‘on rails’ such as *House of the Dead*(1997), offer branching paths”[5].

Whereas the unicursal path in the above quote is discussed in relation to games being ‘on rails’, this can be seen more clearly through a new vocabulary of the path and the track. Whereas paths are bi-directional routes, in that the walker/player can move backwards and forwards along them, the track restricts movement in one direction only, causing them to be unidirectional. Therefore unidirectional tracks offer a different experience to unicursal paths, as the path allows for choice in direction (back and forth), whereas the track restricts movement in one direction only.

Not only is it important to distinguish between paths and tracks, but the understanding of different types of tracks also needs to be more clearly defined. Tracks can be split into two distinct types; those with ‘active volition’ and those with ‘suspended volition’. Tracks with ‘active volition’ can be seen in videogames that only allow for the player to move in one direction (such as in *House of the Dead*), yet still allow the player to make some choices only the way. These choices may exist in terms of being able to shoot enemies that may be found along the way, or choose one track over another when a branching within the track occurs. The player is still not able to explore the gameworld in terms of forward and backwards navigation, but they can pause the action, and make some choices as to what they wish to effect on the track. These tracks differ to those with ‘suspended volition’, where the player has no choice whilst their avatar is along the track. As well being forced in one direction through the gameworld, the player is unable to make any decisions for their avatar whilst it remains on this type of track. It can be seen therefore, that these types of track (with suspended volition) cause the player to become viewer as their interaction within the gameworld is temporarily suspended until the track comes to an end. Tracks with suspended volition are those that are related to the warp device and separate to other types of tracks previously mentioned which do appear in certain game genres as a way of structuring the action.

In distinguishing between different types of track, in particular the track that relates to the warp, it is now possible to see how time can be restructured whilst the warp device is being used. Whereas previous to the warp, the player’s avatar had a 1:1 mapping of ‘play time’ to ‘fictional time’, as well as a 1:1 relationship between the avatar and the path, the warp can now change these relationships. It is through understanding different mappings of time existing in different instances in the virtual game world as opposed to that of the quotidian, that

players can accept the possibility of warps within the game. By playing in a virtual world, natural world occurrences do not have to be obeyed, and the laws of physics can be changed so that moving through walls, skipping parts of levels, accidentally falling down a tube and ending up in a new location, or normally sequential narrative structures being re-ordered, can all be accomplished within the game setting. As Huizinga states, “Play is distinct from ‘ordinary’ life both as to locality and duration. This is the third main characteristic of play: its secludedness, its limitedness. It is ‘played out’ within certain limits of time and place. It contains its own course and meaning”[8]

The act of play sets the gameworld apart from that of the real world. Players can move through spaces in a way not possible in the real world, and discover ‘magical’ ways of traveling through the gamespace. It is finding these newly discovered parts of the game that can be the thrill of playing, and it is through the unique understanding of the ‘magic circle’ of play space that the warp function has been incorporated into games. Factors such as these that will now be discussed further throughout this paper as different types of warp are categorised.

## CATEGORIES OF WARP

It can be seen that there are two distinct categories of warp within the videogame, those warps ‘found’ by the aberrant player (see [7]) or those deliberately within the gameworld. Each instance of the warp offers similar yet different experiences and it is these distinctions that will now be explored as an examination of the various characteristics of the warp in videogames. Warps are used as designed features within many games, and have also been discussed using terms such as ‘portals’, ‘teleporters’, or ‘warp zones’. Rollins and Adams discuss the use of ‘Teleporters’ within videogames stating that, “teleporters can further complicate matters by not always working the same way, teleporting the player to one place the first time they are used, but to somewhere else the second time, and so on. They can also be one-way or two-way, teleporting players somewhere with no way to get back, or allowing them to teleport again”[16].

What Rollins and Adams term as a ‘teleport’ can also be seen as a warp. The two features perform the same function, breaking the player’s path and taking them somewhere new. Rollins and Adams comments about teleports raise questions apparent in the design of warps within videogames and the player’s experience of them. Not every warp encountered acts in the same way. The deliberately installed warp pipes of *Super Mario Bros* (as discussed in Taylor’s quote) give the player a different experience to the warps used within the game *Portal*. Although both temporarily break the path, and cause the player to have little control over the place they are taken to, each warp type has its separate qualities. This can be seen through Jenkins discussion of hidden or secret paths within various

videogames, and how these differ to what he terms the ‘pre-programmed pathways’ of the game. He states, “‘Secret codes, ‘Easter eggs’ and ‘Warp Zones’ function in digital space like secret paths do in physical space and are eagerly sought by gamers who want to go places and see things other can’t find”[9].

For Jenkins, the ‘warp zone’ is seen as a place found by what I have previously termed the aberrant player. These warps exist in a similar category to what Jenkins terms ‘secret codes’ and ‘Easter eggs’, those hidden ‘added extras’ found by players exploring outside of the game rules in search of the greater algorithm. This, in itself, sets these types of warp within a different category to those that are built in as part of the deliberately designed game rules. It might raise further questions about the distinctions between various types of warp function within videogames.

As Aarseth writes, “[a] common motive in many, if not most, computer games is the teleporter, a means to move instantly from one point in the gameworld to another”[2]. Aarseth goes on to discuss how this relates back to MUDs (multi-user dungeons/domains) and although MUD administrators tried to keep rooms “topologically correct”, the most common way to move rooms was by teleporting rather than moving back and forth through each individual room. Ease of movement in this way was due to players not having a graphical representation of the gameworld, only a text-based description. This meant that moving between rooms easily was not always questioned by the player. However, now that videogames now present players with displayed avatars and movement through three-dimensional space, the various uses and types of warps need further examination. The two main categories can be seen as ‘puzzle warps and ‘inadvertent warps’ respectively. Whereas ‘puzzle warps’ are those warps deliberately installed into the puzzle sequences and solutions of the game, the ‘inadvertent warp’ is often found by the aberrant player. Through a discussion of these new terms, the various ways of breaking the path through different warp devices will be categorised further.

## PUZZLE WARPS

Warps can also be included within videogames as part of the ‘puzzle’ to be solved. The word puzzle here is not used in relation to puzzle games as such, but as a term to describe a problem that needs to be solved within the game. The puzzle may be how to activate the warp, or how the player positions the warp to transport them to the right location, or which warp to choose when multiple warp zones are found. As previously discussed, not every warp encountered within the videogame acts in the same way. The deliberately installed warp pipes of *Super Mario Bros* (as discussed in previously), give the player a different experience to the warps used with the game *Portal*. Although both temporarily break the path, and cause the player to have little control over the place they are

transported to. Each warp has separate qualities in terms of how the warp is presented to the player, its use, the effect of the warp in terms of temporal, narrative and gameplay elements, how long the warp lasts and where the warp takes the player too.

Taking into account various characteristics associated with warps, we can categorise puzzle warps into three distinct types. These are:

1. Jump Warps
2. Return Warps
3. Portals

These are named through the effect of the warp destination on the player, and how the warp can be used. In order to understand each warp, a more detailed discussion of their characteristics and uses needs to be had.

Jumps warps can be categorised as being unidirectional, in that the warp only works one way. This is linked to the warp being a ‘use-once’ type of warp, meaning once used the player will have to find another jump warp or other type of warp in order to warp again or return to their previous path. Jumps can be further separated into ‘visible jumps’ and ‘aleatoric jumps’.

‘Visible Jumps’ are defined as the player being able to see both the start and end point of the jump warp. ‘Visible jumps’ can be seen in the warps found in *Toki Toki*. This is a puzzle game, reminiscent in many ways of *Lemmings*, in that the player has a toolbox of items they can use to fill in the paths of the game, such as bridges, or to jump to another part of the same level by using a warp. The warp is visible to the player as the level is two-dimensional and exists on one screen, therefore the start and end points are both shown and there is no surprise as to where the player will warp to. The player can determine the end point of the warp. This is a very different experience to that of the ‘aleatoric jump’. These jumps are defined as the player understanding where the start point of the warp is, but the end point cannot be seen as the new path is determined by the games system. These jumps have been termed as such by using Caillois’ use of ‘alea’, defined as “games of chance” (see [4]). As the end path is hidden from the player, whether found in the 2D or 3D game, the player takes a risk as to where they will warp. These types of warp can be seen in the inadvertent warps of *Super Mario Bros* where the player has no way of knowing where each of the warp pipes presented to them will take their avatar. By choosing one pipe over the others, the player risks ending up somewhere that may in fact hinder their process, rather than progress it, but it is through the ‘aleatoric jump’ that the player can learn to differentiate between each warp device and where it will take them once used. Jump warps can happen within the same level, so the player warps to a previous part of a level, or a place slightly further along. The warp could also take them to a new level altogether, therefore the player has an added challenge of new paths to experience. Jumps can

also turn out to be ‘return warps’, but this only becomes obvious once the player moves one way and then realises she can warp back again. It is through this discovery and learning process that warps can change in meaning and definition.

‘Return warps’ differ to ‘jump warps’ in that they now allow the players avatar to move back through the warp again, making the warp bidirectional instead of unidirectional. This again starts to differentiate between two different types of return warp, those that allow the players avatar to warp back again to their original point, and those that then create a new warp that takes the players avatar to another place once again. These can be seen as ‘return to previous’ and ‘return to other’ warps respectively. In the second instance, the ‘return to other’ warp creates more confusion for the player as they may originally believe that they will be warped back to the original path they first warped from. These can also be seen as ‘aleatoric’, such as the jump warps mentioned previously, as once again, the end point is decided by the games system and the player takes a chance as to where their avatar will end up. Transporting the player’s avatar to another path disrupts the original game path and the player’s experience; therefore these types of warps are probably less common within videogames. The more common ‘return to previous’ warp can be extremely useful for players wanting to move around a gamespace, especially one that includes various mini-tasks within the game. This can be seen in the game *Banjo Kazooie: Nuts and Bolts*. Here the player can warp between the central area of the game back and forth to various mini-games that can be found outside the central game world. The town area of the game is the focal meeting point of the game and is a place where the player’s avatar can upload puzzle pieces and gain advice from other non-player characters. Although it is the core area of the game, most of the game action occurs outside of this area, as the player’s avatar is warped to other mini-worlds in order to complete smaller games to gain puzzles and rewards. As these puzzle pieces have to be returned to the central town of the game, return warps are built into the game design to allow the player to return here more easily and deposit their rewards. The warp makes travel from different parts of the game quicker and may act as a puzzle in itself, for the player has to remember which parts of the world are unlocked and can be warped to and which are remaining to be opened. The ‘return warp’ in itself can act as a reward for allowing the player to return back to their starting area, and may be a ‘jump warp’ that can be unlocked in order to be turned into a ‘return warp’ once a certain task has been completed. Although some warp types have their own unique properties, it is possible for warp characteristics to exist in more than one warp type. Whereas some warps only allow the player’s avatar to move in one direction, other warps have shared properties, such as whether the warp is freely open or conditional (it may need a key to activate it). Return warps may be freely open within certain types of games, whereas other games may have return warps that are

conditional. Return warps themselves may turn into another type of warp once the position of the start and end points of the warp have been discovered. This links to the last type of puzzle warp that I have defined, that of the ‘portal’.

In his discussion of portals and teleporters in both videogames and MUDs, James Newman uses the term portal to discuss warp systems. He writes, “Turok: Dinosaur Hunter uses a similarly non-linear teleport system. An array of portals non-spatially link the central Hub to individual levels. In a style popularised through science fiction such as Star Trek, the player walks through the appropriate portal in the Hub whereupon they appear at their chosen level”[14]. ‘Portals’ are unique as they are probably the most flexible type of warp available. They are similar to ‘return warps’ in that they allow for movement between start and end point. However, they differ to ‘return warps’ in that the player has full visibility of both the start and end point of the warp before they choose to accept the ‘portal’. The ‘portal’ acts in many ways as the truly visible warp, allowing the player to see where they are warping too, and then giving them slightly more freedom as to whether they choose to accept it or not.

‘Portal warps’ are most easily described through the game of the same name *Portal*. The game shows how the properties associated with this type of warp are not necessarily fixed. At the beginning of *Portal* the player learns how the ‘portal warp’ works, allowing them to move from one path to another by using a pre-determined start point to the warp, and positioning their own end point. As the player advances through the first few tasks of the game, they are then given greater freedom of being able to create their own start and end points to each ‘warp portal’. This allows the player to cancel these choices and create new ones on being able to see where the portals will lead them. The game challenges the player to place the portals in the correct position in order to solve puzzles along different paths, making the paths safe before the player’s avatar warps to the new path and carries on its journey. It is a game based around the breaking of the path, and understanding how to manipulate paths in different areas of the game in order to make them safe for the player’s avatar to eventually move along them. The constant warping between different paths keeps the player’s momentum through the game, and allows different paths to be used in new ways as the player experiences non-sequential path combinations. The manipulation of the path and the moving between different paths changes the player’s experience of the paths they are encountering, allowing the same room to be experienced and viewed from different positions depending on the new path the player’s avatar is then warped too.

It is from this discussion of ‘puzzle warps’ that the attention of this paper now shifts to that of the ‘inadvertent warp’, those warps not deliberately installed within the design of the game, but found by those exploring the game system further.

## INADVERTENT WARPS

The inadvertent warp is not deliberately installed as part of the original game design, it is an added and accidental extra to be found, much like the ‘Easter eggs’ described in previously by Jenkins. Sometimes inadvertent warps are deliberately installed, to be discovered by the aberrant player straying from the designed paths of the game. At other times they may be bugs in the system such as the ‘minus level’ of *Super Mario Bros*. This is reached through finding a ‘warp zone’ in a glitch at the end of level 1-2.

By finding the glitch and going through a wall in the game, the player can then go down a warp pipe within the game to ‘level -1’ or the ‘minus level’. This warp is one way, and on encountering the warp at the end of the level, the player starts the level again. As Newman notes, “it is a cul-de-sac, an endlessly scrolling level that offers little or no variety for the gamer and certainly nothing novel as it is made up of elements present in other sequences”[15]. The ‘minus level’ found is actually the same as levels 2-2 and 7-2 further on within the game that the player has yet to find, so this warp found in the glitch changes the time and narrative structure of the game taking them to new levels yet to be opened and explored.

By warping to further levels (or copies of further levels, as in the case of *Super Mario Bros*), the player is not experiencing the usual sequence of learning and related outcomes. Through playing with time and jumping ahead within the game, the player has no longer experienced the levels in between that help with the learning process of the game. This in some ways can be seen as cheating, by being able to glimpse at what is yet to come in the game, or completing the game by warping to levels nearer the end of the game without having to complete other ones previously. This cheating may backfire as the player struggles to understand how to tackle higher levels as the learning involved in previously levels has been skipped. The player no longer has access to the mastery involved in progressing through the usual sequence, learning how to overcome path structures and the related uncertainty in earlier ‘easier’ levels. Being able to skip parts of the game in this way does allow the player to complete the game in a quicker time, and it is this aspect that can be used whilst competing with other people in the completion of games. Time is often a factor when comparing how people have played a particular game. Some players like to complete games in the quickest time possible; thus giving them a sense of achievement or an illusion of achievement. Time became important in arcade games as time meant money. By being able to survive the game for a longer period of time the player didn’t have to insert another coin to keep the game alive. Warps distort time in videogames further, allowing players to progress more quickly, therefore finding an inadvertent warp may help with completing the game quicker. On the downside, the inadvertent warp may lead to a secret area that the player is unable to get out of, and this discovery does not lead to quicker completion but further exploration

or having to restart the game and start again. Inadvertent warps found within videogames tend to be unidirectional. In finding glitches the player may be warped to a new area, but it is one not connected with the rest of the game world. As old paths fade away and although new ones are discovered, these new paths are no longer connected to the paths of the original game. If there is no new warp to be found, the player may remain trapped within the dead-end of the newly found area. The only way to escape is to reset the game and start again, in the hope that the warp will not be encountered again unless it is desired. In starting again the previous sequential temporal and narrative elements of the original game can be resumed. The unidirectional nature of inadvertent warps tends to be due to the fact they are accidents of code, bugs that never meant to be legitimately found. The experience of these warps are therefore markedly different to those with are deliberately installed within the game design.

## CONCLUSION

It can be seen from the above discussion that warps in general carry a set of fixed properties marking them out from other objects found along the path. It is through these definitions that different warp experiences can start to be categorised and defined further, in particular those of the ‘puzzle warp’ vs. the ‘inadvertent warp’. Discussing the warp device itself also draws our attention the differences between ‘tracks’ and ‘paths’ within videogames, and how it is possible to move between these two different types of route. It is the properties associated with ‘tracks with suspended volition’ that tie together all categories of warp.

In understanding the different instances of the warp within videogames it is now possible to see how the player experience can be shaped differently in each warp occurrence. Whereas some warps aid player exploration and may give a ‘sneak preview’ of paths yet to come, others may hinder the avatar’s progress along the path and see them trapped within a dead-end until the game is restarted. It is also the case that in skipping some levels of the game through the warp, that the players learning of the gameworld may be hindered through interrupting the sequential development of being able to master the game. In recognizing each definition of the warp it is now possible to understand and discuss path and track structures further and therefore the player’s experience in moving their avatar through the gameworld.

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